CALFED
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Plan turns back clock for state rivers
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A salmon hatched in river gravel near Redding heads for the Pacific Ocean.

Four inches long, it swims downstream -- exhaustingly fast, because the Sacramento River, squeezed by levees, runs swift and deep. There are no calm pools, no slack sloughs in which to rest.

There is also no place to hide, no tules in which to duck from hungry squawfish. And it's hot, because there is no shade.

Harnessed to work for people, the Sacramento River becomes dangerous to salmon. But billions of dollars and 30 years may change that, by rebuilding the river to better suit fish.

The state and the federal government have launched a campaign in the Central Valley rivaled in cost and scale only by the effort to save Florida's Everglades. To keep native fish from spiraling into extinction, they intend to make the Sacramento and other rivers behave more like they did a century ago.

There is no opposition to their goals -- in principle -- among environmentalists, urban water districts or irrigation districts. They link more wild salmon to more secure water supplies.

"We have come to realize that our future is inextricably tied to the future of that ecosystem," said Tim Quinn, deputy general manager of the Metropolitan Water District of Southern California. "If we're not taking care of the Bay-Delta ecosystem from which our water supplies come, than we're not taking care of the Southern California economy."

But if fully implemented, the plans could convert more than 200 square miles of farmland. To some, it's as threatening as suburban sprawl.

"To me it's inconceivable that they think they need this much acreage," said Tom Zuckerman, an attorney with the Central Delta Water Agency, as he drove across Brack Tract, a quilt of cornfields, vineyards and dairies on the eastern edge of the Delta near Lodi. It is one island CalFed proposes to flood for wildlife habitat.

"This is the staff of the local economy," said Zuckerman. "These vineyards are probably worth $15,000 an acre."

And history and science give no guarantee that CalFed's massive effort will work, even as it keeps government scientists and consulting firms busy for decades.

"You could spend a lot of money on things that turn out not to do a lot of good," said Kai Lee, director of the Center for Environmental Studies at Williams College in Massachusetts. "The bigger your program, the more likely it is to grind to a halt."

Government biologists plan to soften levee banks with reeds, make marshes of floodplains and let sandbar islands grow again in the middle of rivers. They want to screen hundreds of irrigation pumps, push apart levees and open Delta islands to tides. They'd buy water to boost river flows, build reservoirs to release water when fish need it and pay farmers to grow cottonwoods, not almonds, at the river's edge.

They've already invested $100 million since 1996 in projects such as tearing out small dams, spreading gravel for salmon and buying San Joaquin River floodplain. Their ambitions are not bureaucratic pipe dreams; most of the at least $1.5 billion they believe they'll need over 30 years is virtually assured, having been granted by Congress or approved by California voters in a 1996 water bond.

That $1.5 billion pays just capital costs. It will take an additional estimated $60 million a year, officials say, to maintain the restoration projects.

The effort is the first and perhaps most critical step of CalFed, a 3-year-old team of government engineers, biologists, hydrologists and other experts working with environmentalists, urban water districts and agribusiness. They are trying to find ways to store, conserve, swap and move water so that the water project pumps that act as major predators of salmon and smelt can be shut down when necessary to protect fish without stranding the California economy.

CalFed's goals are clear, with targets set for acres created of tidal wetlands, riverside forest, floodplain. But it's not clear whose land will meet those goals. The program depends heavily upon willing sellers.

Dick Daniel, head of CalFed's restoration effort, said he's optimistic CalFed will find farmers willing to deal at market value. On the Sacramento River, for example, there may be some who are weary of losing crops to the seepage that follows the river's ancient sandy bed, even where it's been cut off by levees.

That's exactly the sort of land most valuable to CalFed, he said -- a place where the river naturally tends to meander.

"It makes a lot of sense for us to mimic that same natural pattern when we look for setback opportunities," Daniel said.

One such stretch along the Sacramento River falls within Reclamation District 1500, 110 square miles of corn, tomatoes and rice north of Knights Landing.

Here the levees are steep and high, armored with chunks of rock and burned each summer at the water's edge to reveal rodent holes to inspectors' eyes. Not once since RD 1500 was created in 1913 has the Sacramento River broken through these levees.

To general manager Max Sakato, they are a defense against ruin. To a biologist, those levees are sterile mounds that stop the flooding, shifting, deposition and erosion that make a river a corridor of life.

But moving them back may be a lot more costly, complicated and unrewarding than most people realize, Sakato said. What happens when the river starts meandering in its wider channel and strands irrigation pumps? Where does the material for new levees come from, and who pays? Maybe a farmer can still grow crops inside the wider levee, but who will insure him

against the flood risk? How will weeds and silt from regular flooding affect his production? What happens to Sutter County tax rolls when 10,000 acres of cropland are converted to wildlife habitat?

By spreading river water across the land, said Sakato, "we're producing crops and livelihoods and wildlife and waterfowl habitat. It is a trade-off."

By the end of seven years, CalFed expects to have spent $811 million. CalFed staff -- it's now a $16 million-a-year operation -- will tackle some of the work. Roughly 500 proposals for restoration projects have been submitted by government agencies, environmental groups, organized landowners and private consulting firms. CalFed committees choose which to fund.

Many people argue that CalFed doesn't know enough to wisely invest $1.5 billion in the first place. The benefits are uncertain, said Richard Golb, executive director of the Northern California Water Association, and the risks to agriculture tremendous.

"The only empirical evidence they can cite (for wanting to rework the Sacramento River) is that's the way it used to look," he said.

CalFed is a lot more concerned with how the river used to work than how it used to look. Its ultimate goal isn't even a certain number of acres converted to wildlife habitat. CalFed leaders say they want to restore what they call ecological functions. They want rivers to once again drop sandbars where cottonwoods take root, to spread baseball-sized cobble where salmon spawn, and to surge in the spring -- as they did before Shasta and Folsom dams.

The underlying idea is that reintroducing these rhythms and habitats will help more salmon spawn and more of their young survive. Then the overall population will grow, even as some are still killed by water project pumps.

Most endangered fish in California don't get so much attention. Those of the Central Valley – two runs of chinook salmon and the Delta smelt -- matter more to the government because trying to keep them alive can and has compromised the key water supplies of a trillion-dollar economy.

There are so few winter-run chinook salmon left that when too many get caught at Delta water project pumps, the Endangered Species Act forces pump operators to stop sending so much water to Southern California. In a dry year, that can be disastrous for Kern County farmers and south coast cities.

Politically, the stakes are huge. If, after seven years, the restoration campaign doesn't bring back more fish, then CalFed leaders say they'll also try a more traditional, engineered route: a $1 billion waterway, a peripheral canal, to siphon water out of the Sacramento River near Hood and feed it directly to water project pumps 42 miles away.

In 1982, a referendum on such a canal tore the state apart. Voters in the north killed the plan, while the south endorsed it. The issues and emotions haven't changed much: Environmentalists fear such a canal could starve the Sacramento-San Joaquin Delta of fresh water, ruining it as a major fish nursery and migration corridor. Southern California cities and farmers say that a canal would make it easier to ship water south and save the fish, eggs and larvae now sucked into water project pumps.

If Daniel has his way, California won't have to revisit that bitter debate.

The program he helped design sweeps from Sierra headwaters to the salty end of valley rivers under the Golden Gate Bridge.

Most dramatic would be CalFed's mark in the Delta. Here, the Sacramento and San Joaquin rivers fray into a mesh of hundreds of miles of sloughs. Those sloughs wind around 65 islands so sunken by decomposition of the peat soils that they would sit many feet under water if not for levees.

Best reached by boat and unfamiliar to even many longtime Sacramento residents, the Delta is a land of corn, tomatoes, potatoes and onions -- but less so every year. One by one, its islands are being bought by government agencies trying to salvage wildlife habitat or avoid the expense of maintaining levees. Already, all or most of Twitchell, Jersey, Sherman and Prospect islands and Frank's Tract are owned by government. Four additional islands have been purchased by a corporation that intends to store water to sell on the bowl-like islands.

Of the maximum 188,000 acres that would be remade by CalFed's plans, 60 percent are in the Delta, and most of that would be turned into wetlands of one sort or another -- seasonal, freshwater or tidal.

"We're going to end up changing the look of agriculture in the Delta if we implement the whole program," Daniel said.

"But we think we can do it in a way that minimizes the impact to agriculture," he said, "and in a way that makes the remaining land stronger, more resistant to urban encroachment and more productive."

Restoration will focus first on public lands, said Daniel, and a big part of the program won't eliminate agriculture. It involves paying farmers to change their ways for wildlife, such as leaving waste corn on fields after harvest and flooding fields in the winter. CalFed expects to cover 385,000 acres in this way.

But CalFed's plans exacerbate a long-held sense that the Delta is being asked to pay for the sins of the Southern California cities and growers that pump away 30 percent to 60 percent of the fresh water that would otherwise wind through the Delta and out to the ocean.

"You can't really ask the Delta community to solve a problem it didn't create," Zuckerman said.

He calls the CalFed restoration program "a bunch of targets and numbers" with the potential to lay waste to the agricultural economy in the Delta.

What's needed, Zuckerman said, is a reduction in water exports to Southern California and a small-scale, sequential approach to restoration "so we don't do the typical government thing and buy up all the land and then not manage it."

A good example of CalFed's intentions is under way on Prospect Island, a skinny, 2-square-mile piece of land bordered by the Sacramento Deep Water Ship Channel. The federal government owns the island.

It has flooded seven times in the last 17 years. Tides still slosh in and out through a hole breached in January 1997. The island has become a lake -- more natural-looking than the farm field it used to be, but still hardly valuable to wildlife, according to government biologists.

They propose fixing the levees and draining the island. Then they'd resculpt it with bulldozers, building hills, digging channels. They'd plant willows, black walnuts and tules. Then they'd break the levee again.

And if it works as planned, they'd get a mosaic of habitat: Narrow, swift-moving channels for salmon and slow, dead-end ditches for spawning Delta smelt. They'd get mudflats for shorebirds, islands for hunting hawks, and rafts of smartweed to feed ducks.

In all, the work at Prospect Island is estimated to cost $5.4 million. The U.S. Army Corps of Engineers would pay three-quarters of that cost. The state Department of Water Resources, using money Southern California water districts ponied up to get CalFed rolling, would pay the rest.

That bill doesn't include the $2 million that government biologists want in order to track in coming years how the project affects fish, wildlife, water quality, vegetation, sediment and four other parameters.

That sort of monitoring -- and making adjustments based on what it reveals -- will be critical to CalFed's restoration work, Daniel said. Who knows? he said. The remade Prospect Island could be invaded by weeds and salmon-eating striped bass.

"Restoration science, particularly the kind we're talking about, is extremely new, in some cases only 20 or 30 years old," said Bruce Pavlik, a biology professor at Mills College in Oakland. "Restoration is on the steepest part of the learning curve right now."

No one has yet inventoried the many new wetland restoration projects in the Bay Area to figure out what works, he said. That's why CalFed must build in as much science as it can from the start.

Monitoring doesn't mean gathering every kind of information possible, said Pavlik. Instead, CalFed needs to ask itself a few narrow questions -- Are Delta smelt using the island? Is it growing food for winter-run chinook salmon? -- and stick to them.

"The long-term perspective is the most important one," he said. "Where we're going to be 50 years from now is much more important than where we are in fiscal year '99.."

Daniel said that's exactly what CalFed intends -- even though a CalFed committee recently rejected the proposal for a $2 million monitoring program at Prospect Island. Some kind of monitoring will be put in place, he said, even if it's scaled back.

"We've set up the program in such a way that we learn from every action we implement," said Daniel, "whether it be something as straightforward as a fish screen or as complicated as restoring tidal action for Prospect Island."